The media used were as follows :

Medium A : Peptone—1 g; Sodium chloride—5 g; KH_2PO_4—2 g; L-asparagine—20 g; phenol red (2 g/l aqueous solution) 6 ml; Agar—20 g; distilled water 1 l; pH 7·00.

Medium B as above except agar-agar.

The media were sterilized at 121° C for 15 min. in an autoclave. Control media were also included in which the substrate L-asparagine was omitted. L-asparaginase converts L-asparagine into aspartic acid and ammonia. This can easily be detected by the change in the pH of the medium using phenol red.

The media, inoculated with fresh cultures, were incubated at 28 ± 1° C for 24 hrs. The change in the colour (pink) of the medium was noted in the presence of L-asparaginase positive cultures while no such colour change could be seen with negative cultures.

All the cultures were screened by the conventional method[8] to confirm the L-asparaginase activity as above.

Results obtained in the present study are shown in Table I. L-asparaginase activity was absent in 34% of the total cultures examined in the present study. It is clear that the cultures which exhibit the enzyme activity by the conventional method were also giving positive reactions in the media used. None of the control media showed any change in the colour of the medium, though growth was observed. The colour change was noticed earlier in the liquid medium as compared to the slants. This may be due to the rapid growth of the organism in the medium B. The intensity of the colour of the medium deepens as the incubation continued and remained unaltered after 20 hrs. of growth.

It is also quite clear from the table that the enzyme activity has no relationship with the degree of the colour intensity of the medium. This is due to the change in the conditions of the assay mixture.

The present study thus clearly indicates that medium A or medium B can safely be used to detect quickly L-asparaginase positive cultures both for the screening programme and also for taxonomical studies. There are some reports[6,9,10] which show that this enzyme activity could be used in taxonomical studies of microorganisms.

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Centre of Advanced Study
in Marine Biology,
Parangipettai 608 502,
Tamil Nadu, India,
July 14, 1978.

N. SELVAKUMAR.
D. CHANDRAMOHAN.
R. NATARAJAN.

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EFFECT OF JUVENILE HORMONE ANALOGUE ZR-515 ON THE LAST INSTAR NYMPHS OF *DYSDERCUS CINGULATUS* FABR. (PYRRHOCORIDAE : HETEROPTERA)

Introduction

JUVENILE hormone analogue (JHA) is an effective growth regulator in insects Wyatt[7]. Insect hormones and their synthetic analogues are considered to be very promising because they show high biological activity, low mammalian toxicity and short environmental persistence. In the present investigation the juvenile hormone analogue ZR–515 was tested on the last instar nymphs of *Dysdercus cingulatus* Fabr. in different concentrations.

Materials and Methods

The test insects used in this experiment were from a pure culture maintained in the laboratory at 28±2° C reared on soaked cotton seeds. Various concentrations of ZR–515–Altosid [isopropyl (2E, 4E)–11–methoxy–3,7,11–trimethyl–2–4–dodecadienoate; Zoecon Corporation, U.S.A.] were applied topically to freshly moulted last instar nymphs. Two concentrations 0·25 and 0·5% of JHA were prepared in 1% acetone solution; for control only 1% acetone was used. Each of these concentrations was applied individually on the dorsal surface with the aid of a micropipette (2 µl per insect). Sixty nymphs were

treated with each dose. Each set of experiments was replicated thrice. The treated nymphs were reared further in pair in 250 c.c vol. cages.

The experimental data are presented in Table I and Fig. 1.

TABLE I

Effect of ZR-515 on the last instar nymphs of Dysdercus cingulatus *Fabr.*

Sl. No.	Concentration of Altosid (per cent)	Percentage of nymphs moulted into normal adult	Percentage mortality	Percentage with malformed characters
1.	0·25	30	50	20
2.	0·5	10	60	30
3.	Control (Acetone)	90	10	—

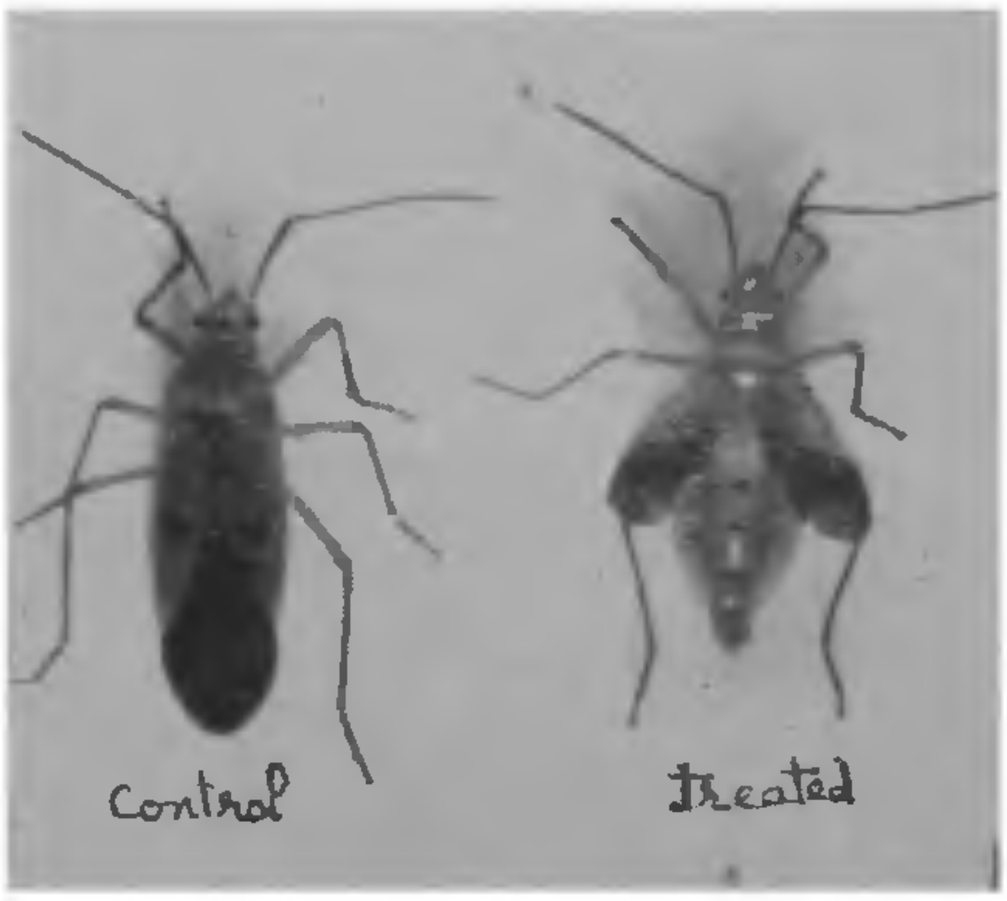

FIG. 1

Results and Discussion

Application of synthetic JHA to the last instar prevented their moulting into adult and the percentage decreased with the increase in concentration of Altosid. The same trend of result was reported by Hongertner and Masner[2] against the larvae of German cockroach. There was a significant increase in mortality in the present studies. The mortality was 50% and 60% when treated with 9·25% and 0·5% concentrations, respectively, with only 10% in control. Skuhravy[5] reported the mortality (87–98%) of larch cane borer moth with a juvenoid.

In the present experiment, nymphs moulted into normal adult was 30% and 10% when treated with 0·25% and 0·5% concentrations respectively. The findings are supported by. Outram[3] who observed that the emergence was effected at higher doses of a synthetic juvenile hormone in *Prodenia litura.*

Application of synthetic JHA also showed prolonged nymphal stage and formation of malformed adults (Fig. 1). This kind of malformation was also reported by Abdallah[1], Retnakaran[4], Varjas and Sehnal[6] against the last instar caterpillar of *Adoxophyes orana, Choristoneura fumiferana* and *Hyphantria cunea* when treated with a juvenile hormone analogue.

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Department of Zoology,
University of Rajasthan,
Jaipur,
September 15, 1978.

M. ZUTSHI.
Y. SAXENA.
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OCCURRENCE OF MUCOUS SECRETING SEGMENT IN THE NEPHRON OF *DANIO RERIO (HAM)*

THE nephron of freshwater teleosts is generally divided into several compartments such as (1) glomerulus, (2) neck, (3) proximal segment, (4) intermediate segment, (5) distal segment and (6) collecting tubule. All these segments hold different histological pattern. In freshwater teleosts the proximal segment is further subdivided into two subsegments namely proximal one and proximal two.

In *D. rerio,* which is a freshwater representative with very active swimming habit, there occurs a peculiar mucous secreting segment. Here, the first portion of the proximal segment resembles closely with other teleostean species but the second portion of this segment is markedly different in having a hyaline zone in between basally situated nucleu and mucous like brush border surrounding the lumen. In this case, the cells of the second portion of proximal segment increase considerably in height and thickness from its preceding segment and accumulate heavy secreting granules. This feature is particularly observed in the breeding season of these fish.